DEPARTMENT OF THE ARMY
WASHINGTON AQUEDUCT
U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT
5900 MACARTHUR BOULEVARD, N.W.
WASHINGTON, D.C. 20016

December 19, 2016

Office of the General Manager

Chief
NPDES Branch (3WP21)
Office of Compliance and Enforcement
Water Protection Division
US EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Subject: Report of Unanticipated Discharge of Potable Water from Second High Service Reservoir (NPDES Permit DC 0000019 Outfall #008) into Mill Creek, a tributary of Little Falls Branch

On December 13, 2016, a Washington Aqueduct employee noticed more water in Mill Creek than would be expected, since there had been no rain locally. This creek is channeled around the Dalecarlia Reservoir and is not visible unless one is traveling on the road around the reservoir. This event was reported to management, and on December 14 Washington Aqueduct Plant Operations determined that one possibility to account for that water was an unplanned or unexpected discharge from Second High reservoir, which is a permitted outfall (#008) under our NPDES Permit DC 000019. Further investigation revealed that the reservoir was not leaking nor was it being drained. It was being accidently over-pumped and it overtopped into the discharge structure. A sample of the December 13 discharge was collected from the vicinity of Mill Creek entering Little Falls Branch and it was analyzed. It was drinking water. It had a chlorine residual of 1.0 mg/Liter.

Washington Aqueduct looked at its control records and operational procedures to determine how this happened. The records showed this overtopping occurred between 11:40 am and 6:35 pm on December 13, 2016.

The investigation revealed that two factors contributed to this situation. In June 2016, as part of the Army's Critical Infrastructure Risk Management cyber team's assessment of Washington Aqueduct's industrial control systems, the team determined a potential vulnerability with Washington Aqueduct signals being transmitted to DC Water's Bryant Street Pumping Station. One of these signals was the Second High elevation signal. To correct that deficiency, we have ceased transmitting signals to DC Water until a less vulnerable way is found to give Bryant Street Pumping Station assess to those signals.

Because of pressure needs in the Second High zone in the vicinity of Bryant Street Pumping Station and because of the need to push that Second High service water westward out of the District of Columbia to the Fairfax Water service area, Bryant Street handles almost all Second High pumping. Without the signal showing Second High reservoir elevations, they relied on the Dalecarlia water operations receiving an electronic alarm if Second High was in danger of being overfilled, and Dalecarlia operators would call the DC Water operator. Cooperation is excellent between the two organizations, and we were confident that we could use this technique to control the Second High reservoir elevation until a secure signal is restored to them.

However, we have determined that on or about October 15, 2016, during a software update to the Dalecarlia control systems, we unintentionally we changed a signal condition in the software and in doing so eliminated the alarm that was in place to alert the operators that Second High reservoir pumping needed to stop.

We have further determined that on several occasions between October 15 2016, and December 13, 2016, there have been other overflows. Unless a person happened to see Mill Creek during one of those overflows, we would be unware that it was happening.

The setting that causes the high water alarm on Second High reservoir has been restored in the Washington Aqueduct control room, and the operators are well-briefed to be attentive to it and to call the DC Water Bryant Street operations and ask them to cease pumping on Second High until normal distribution system use draws the reservoir level down and it needs to be refilled.

On December 15, I notified EPA Region 3 by phone and left a voice mail for Mr. Andy Dinsmore, and I sent an email to the District of Columbia Department of Energy and the Environment (Mr. Collin Burrell) notifying them of the situation we discovered and explaining we would follow up with this more complete report in accordance with the requirements of our NDPES permit.

I may be reached at 202-764-0031 and will be happy to answer questions and provide additional information.

Sincerely,

Thomas P. Jacobus
General Manager

Cc: Mr. Collin R. Burrell, DOEE
Mr. Bob Vogel, NPS, Washington, DC
Mr. Kevin Brandt NPS, C&O Canal NHP, Hagerstown, MD
Ms. Genevieve LaRouche, USFWS
Ms. Julie Crocker, NMFS
Mr. Carlton Haywood, ICPRB